IN THE CLAIMS:

Please cancel claim 22 without prejudice or disclaimer.

Please amend claims 1, 23 and 24 as follows:

1. (Currently Amended) A system for monitoring mechanical waves from a moving machine which in operation has moving particulate matter therein, the system comprising

at least one sensor located on an exterior surface of the moving machine at a location away from the central axis of the machine, the at least one sensor sensing acoustic waves and including a transmitter for transmitting electrical signals representing the sensed waves over a predetermined period of time to a receiver at a location remote from the at least one sensor, a data processor connected to the receiver ~~for~~ receiving signals from the receiver which signals represent the sensed waves and receiving data relating to the position of at least one sensor as the at least one sensor moves with the exterior surface of the machine and processing the signals to produce output signals for display on a display means, wherein the output signals for display represent one or more parameters indicative of mechanical waves emitted from the moving machine over a predetermined period of time.

2. (Previously Presented) The system as claimed in claim 1 wherein the receiver is located on a stationery surface separate from the moving machine.

3. (Previously Presented) The system as claimed in claim 1, further comprising a power supply for the at least one sensor is located on the moving machine.

4. (Canceled)

5. (Previously Presented) The system as claimed in claim 1 wherein the data processor is adapted to produce output signals which represent a plurality of acoustic events occurring within the machine, amplitudes of the acoustic events and data relating to the position of the acoustic events.

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Previously Presented) The system as claimed in claim 1 further comprising at least one proximity detector for monitoring the location of the at least one sensor at a predetermined time, whereby data from the proximity switch is adapted to be communicated to the data processor.

10. (Previously Presented) The system as claimed in claim 1 wherein the data processor includes a timing means for calculating the location of the at least one sensor at a predetermined time.

11. (Previously Presented) The system as claimed in claim 1 wherein the at least one sensor includes an accelerometer which is adapted to transmit data relating to the frequency of vibrational events occurring within the machine and the amplitude of the vibrational events at particular locations within the machine to the transmitter.

12. (Previously Presented) A method of analysing operational parameters of a machine having a moving particulate material therein, the method comprising the steps of

recording data representing a number of mechanical events occurring within the machine over a predetermined period of time, the amplitude of the mechanical events occurring over the predetermined period of time and positional data relating to the position of the mechanical events occurring within the machine,

displaying a graphical representation of the recorded data, the graphical representation including parameters relating to the number of mechanical events, the amplitude of mechanical events

and the position of mechanical events occurring within the machine during the machines operation, and

the graphical representation of recorded data including mean and standard deviation of vibrational events occurring within the machine, power spectral density of vibrational events occurring within the machine and histograms of amplitude of vibrational events occurring within the machine.

13. (Cancelled)

14. (Previously Presented) The method as claimed in claim 12, further comprising the step of measuring volumetric load of the particulate matter within the machine by identifying the toe and shoulder portions of the particulate matter.

15. (Original) The method as claimed in claim 14 wherein volumetric load is determined from a polar co-ordinate plot of events occurring within the machine.

16. (Original) The method as claimed in claim 15 wherein volumetric load is calculated for a range of angles in which events within the machine have greatest deleterious effect on the interior of the machine.

17. (Original) The method as claimed in claim 16 wherein a value for volumetric filling of the mill is produced from the recorded data and the value of volumetric filling

$$f = \frac{(\theta - \sin \theta)}{2\pi}$$

where θ is the angle (radiance) between the toe and shoulder positions of the particulate matter.

18. (Previously Presented) A method of controlling operational parameters of a machine having a moveable substance therein, the method comprising the steps of

recording data representing a number of vibrational events occurring within a machine over a predetermined period of time, amplitude of the vibrational events occurring over the predetermined period of time and position data relating to the position of the vibrational events over the predetermined period of time, and

determining zones within the machine which are subject to predetermined levels of wear and altering the machine operational characteristics to reduce the levels of wear for the zones.

19. (Previously Presented) A method of identifying the volumetric load of particulate matter within a machine comprising the steps of

receiving data, representing a number of mechanical events occurring within the machine over a predetermined period of time, the amplitude of the mechanical events occurring over the predetermined period of time and positional data relating to the position of the mechanical events occurring within the machine, and

processing the received data to identify toe and shoulder positions of the particulate matter within the machine whereby the location of maximum deterioration of an inside surface of the machine can be minimized.

20. (Original) The method as claimed in claim 19 wherein data is received for a plurality of speeds of the machine.

21. (Original) The method as claimed in claim 20 including the step of identifying the fractional filling *f* of the machine where

$$f = \frac{(\theta - \sin \theta)}{2\pi}$$

with θ being the angle (radiance) between the toe and shoulder positions of the charge.

22. (Cancelled)

23. (Currently Amended) The system as claimed in claim ~~22~~ 25, wherein the plurality of sensors are equispaced around the periphery of the moving machine.

24. (Currently Amended) The system as claimed in claim ~~22~~ 25, wherein the plurality of sensors are arranged in an array around the moving machine and along a length of the moving machine to enable a three dimensional co-ordinate axis to be plotted of a location of an origin of omissions from the moving machine.

Please add new claim 25 as follows:

25. (New) A system for monitoring mechanical waves from a moving machine which in operation has moving particulate matter therein, the system comprising

at least one sensor located on an exterior surface of the moving machine at a location away from the central axis of the machine, the at least one sensor sensing acoustic waves and including a transmitter for transmitting electrical signals representing the sensed waves over a predetermined period of time to a receiver at a location remote from the at least one sensor, a data processor connected to the receiver for receiving signals from the receiver which signals represent the sensed waves and processing the signals to produce output signals for display on a

display means, wherein the output signals for display represent one or more parameters indicative of mechanical waves emitted from the moving machine over a predetermined period of time, and a plurality of the at least one sensor being spaced around a periphery of the moving machine to enable polar co-ordinates of an origin of emissions to be located.